In the case of the apple, the lipoids are attacked and decreased, but later a large amount of lipoid is constructed in the fungus itself. Non-protein nitrogen of the apple is converted into protein nitrogen of the parasite, decrease of the former paralleling increase of the latter; but some nitrogen loss results from complete decomposition of nitrogenous compounds with liberation of ammonia. The lipoid phosphorus and protein phosphorus of the apple are first broken down into soluble form, and then reconstructed into protein phosphorus within the parasite. The sugars decrease rapidly as the disease proceeds. The disaccharides are used much less rapidly and completely than the monosaccharides. The starch content remains unchanged. Acidity decreases, for the malic acid of the apple is decomposed without the formation of any other acids by the organism, and a large amount of alcohol is formed from soluble carbohydrates. The authors claim a fairly complete statement of the chemical differences between sound and black-rot diseased apples.—CHARLES A. SHULL.

Tropical vegetation.—In a botanical travelogue, GLEASON[17] has described in a semi-popular way so many phases of vegetation as to make his series of articles an excellent one for visualizing the diversity and luxuriance of tropical forests. Japan with its intensive cultivation of all available land has so little natural vegetation that it becomes insignificant compared with the Philippines. Here the reader is guided through a forest remarkable for luxuriance and rapidity of growth, and made acquainted with many lianas, epiphytes, and strangling figs or "baletes," without losing sight of the stratification of tree growth. Interruptions of the forest growth made by the natives in their attempts at agriculture are seen in the rapid reforestration of the "parangs," or when fire has intervened in the grassy "cogons." Among other matters of botanical interest is the action of volcanoes, like that of Taal, in destroying vegetation and thus furnishing a splendid field for the study of plant reestablishment and succession.

At Java the Botanic Garden of Buitenzorg with its 16,000 species of plants and the less known but not less interesting economic garden were visited. In the latter collections of such different rubber plants as *Ficus*, *Hevea*, *Castilloa*, and *Manihot* growing side by side seem to abound. The mountain garden at Tjibodas was visited also and the beauties and advantages of these collections of tropical plants are pointed out. A similar visit to the garden at Peradeniya and excursions to examine various types of vegetation upon the island of Ceylon complete the tour.—GEO. D. FULLER.

Potamogeton.—HAGSTRÖM[18] has published an elaborate monograph on *Potamogeton*, in which the classification is based largely upon anatomical

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[17] GLEASON, H. A., Botanical sketches from the Asiatic tropics. I. Japan; II. Philippines; III. Java; IV. Ceylon. Torreya **15**:93–101, 117–133, 139–153, 161–175, 187–202, 233–244. 1915; **16**:1–17, 33–45. 1916.

[18] HAGSTRÖM, J. O., Critical researches on the Potamogetons. Kgl. Svensk. Vetensk. Handl. **55**:no. 5. pp. 281. *figs. 119*. 1916.